migration routes takes place in the western half of Rumania. Finally, the birds which have crossed Rumania from the north-west meet those coming from the east of the country in Bulgaria or farther south.

But there are some birds which migrate over almost the whole country in a north-south direction (it is not marked on the map). At least one species may be included in this category, the Woodcock, and maybe the Willow Warbler and the Siskin. The Crane follows the same direction not only in the east of Rumania, but also over the western plains of Crişana and Banat (more precisely NNE–SSW).

The situation is approximately reversed during the spring migration, but in certain species there are little route differences. The Woodcock, for instance, does not pass through the Danube Delta; White-fronted Geese cross the western country in incomparably smaller numbers than in autumn.

The views mentioned above refer to the general aspect of the migration and do not deny the existence of peculiar situations.

Abnormal plumage variations in the Red-headed Weaver

by Bryan L. Sage

Received 19th December, 1968

A previous paper (Sage, 1965) described some plumage variations involving the loss of melanin pigments in the genus *Euplectes* (Ploceidae). The present paper deals with another of this family, the Red-headed Weaver *Anaplectes* (*Malimbus*) *melanotis* (Lafresnaye) which occurs in Africa in two races. In breeding males of the more northern race *A. m. melanotis* the area of the eyes, ear-coverts, nostrils, lores and chin are black, and the outer edges of the flight feathers are scarlet. In the southern race *A. m. rubriceps* (Sundevall) in similar plumage there is little or no black in the facial area and the edges of the flight feathers are yellow, or occasionally pale orange. Individuals showing a tendency in plumage characters towards the other race occur within the distribution of each. In both races there is some variation in the degree of intensity of the crimson areas of the plumage, and often odd red or yellowish feathers occur in the black of the mantle. Generally speaking, it can be said that the northern race inhabits areas of fairly high rainfall, whilst the southern one is found in low rainfall areas.

I have examined three aberrant examples of this species representing one of the northern and two of the southern race as detailed below; all three are from the collection of the National Museum of Bulawayo:

N.M. no. 14745. Male, Rukwh, Tanzania, 25th November, 1953. 8° 20′ S., 37° 40′ E. An area of high rainfall of *ca.* 40 inches per annum.

Black of face normal; usual crimson of head, nape and breast replaced by cadmium-orange, becoming more yellow in tone on the breast; wing edgings yellow and not crimson.

N.M. no. 56518. Male, near Nata, Bechuanaland (now Botswana), 12th November, 1964. 20° 11′ S., 26° 12′ E. A low rainfall area with *ca.* 10–15 inches per annum.

Head (including face), nape, throat orange, becoming cadmium-yellow on the breast; wing edgings yellow.

N.M. no. 56525. Male, near Mouchi, Bechuanaland, 14th November, 1964. 21° 17′ S., 25° 52′ E. Another low rainfall area.

This is a "diluted" specimen in which the head, nape, throat and breast are a pale scarlet instead of the normal deep scarlet.

DISCUSSION

These three specimens exhibit an interesting range of variation from the normal. In no. 14745 there has been a modification of the carotenoid pigmentation whereby the normal deep scarlet or crimson has given way to orange and yellow. Specimen no. 56518 is somewhat similar, the difference in the shades of orange and yellow being small. Specimen no. 56525 presents a less radical change, with the normal scarlet "diluted" to a much paler shade. In all three specimens the melanins in the plumage have not been affected by these changes.

The yellow and orange, as compared with the normal intense scarlet coloration, of specimens 14745 and 56518 would appear to represent a relapse of the specialized red pigment into a more primitive phase of pigmentation. This theory is supported by the findings of Harrison (1965) who has shown that in the Ploceidae there is a tendency for yellow pigment to be present not only in those parts of the plumage where it may have some signal value in epigamic displays, but also where it is masked by heavily melanized plumage. The theory is that in many of the Ploceidae there has been a fairly rapid evolution of very varied black patterns superimposed on a mainly yellow plumage, with no loss of the yellow pigment from the completely melanized areas. The species studied by Harrison were those with black and yellow plumage. Those species with red and black plumage present a similar but less well-known problem. Certainly in the Red-headed Weaver, examination of black mantle feathers shows that a reddish pigment is present but masked by the melanin. This is also indicated by the not infrequent occurrence of red or yellowish feathers on the mantle. On the other hand the male Black-winged Red Bishop *Euplectes hordeacea* (L.) described in an earlier paper (Sage, 1962) had the melanin replaced by white, whilst the red pigment was unaffected. This suggests that in some of the Ploceidae there may be no masked carotenoid pigments in areas of completely melanized plumage.

There is no doubt that the red and yellow pigments in the Ploceidae are carotenoids. This point was, I believe, investigated by the late Professor A. J. Marshall, although I cannot recall the reference. The carotenoids in both the breeding and eclipse plumages of the Red or Orange Bishop *Euplectes orix* (L.) were investigated by Kritzler (1943) who proved the presence of three carotenoids—two red pigments that he designated R_1 and R_2 and lutein. Following an analysis of the diet of captured birds he suggested that R_1 might be an intermediate in the oxidative decomposition of dietary carotenoids. The red pigment R_2 he thought might be a derivative of lycopene. The source from which wild birds obtained the base material for R_2 was not known. In the case of the Black-headed Weaver *Ploceus cucullatus* (Müller), one of the yellow and black species, Brockmann and Volker (1934) found only lutein, but Kritzler found traces of the red R_1 carotenoid also. Professor Volker has recently told me that the yellow pigment in this species is xanthophyll. In the Red Bishop, a black and red species, Kritzler identified no canary-xanthophyll although Brockmann and Volker listed this species as containing a little of this compound. However, Kritzler did find lutein, accompanied by the two red carotenoids, in this species. These results are not

directly comparable as the workers concerned used different techniques in extracting and studying the pigments. Furthermore, there has been some confusion in the nomenclature as applied to lutein and xanthophylls.*

What we now have to consider is the nature of the process by which the normal intense scarlet pigmentation in the Red-headed Weaver has been replaced by yellow in specimens 14745 and 56518. This phenomenon is found occasionally in the Crimson-breasted Shrike or Burchell's Gonolek *Laniarius atrococcineus* (Burchell), and the biochemical aspects of this particular case have been discussed by Volker (1964). He found that in normal (red-breasted) individuals the yellow carotenoid pigments obtained from the food are changed, possibly by means of oxidative conversion, into the red carotenoid astaxanthin. In the yellow-breasted mutants this ability has been lost due to a genetical defect, and the yellow pigment is deposited in the feathers in an unaltered form. This yellow pigment is in fact canary-xanthophyll and is probably comparable with that found in the Ploceidae, as what was classed as lutein by the earlier workers would now be regarded as xanthophyll. It would seem that the genetical aspects of Volker's postulate can be applied to the replacement of the typical intense scarlet by yellow in the aberrant *Anaplectes*. However, the metabolic change of the ingested yellow carotenoid into red pigment may not be entirely oxidative. It has been suggested, I think by Zechmeister (1937), that this conversion is due to fragmentation and cyclization of the long-chain molecules of carotene. I do not know if the red pigment(s) found in the Ploceidae have ever been specifically identified.

The reason for the "dilute" plumage of specimen 56525 is not clear in the absence of chemical tests and microscopic examination of feather sections: it may, however, be worth noting that Volker (1962) has shown that in the red canary, both rhodoxanthin and carotene will produce a soft pink colouring. It may be that some dietary factor is responsible for the aberrant colour of this specimen.

ACKNOWLEDGMENTS

I am most grateful to Michael P. Stuart Irwin of the National Museum of Rhodesia at Bulawayo, for sending me the aberrant specimens of the Red-headed Weaver for study. For helpful discussion on variation in this species I have to thank Mr. C. W. Benson.

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* Fox and Vevers (1960) apply the term xanthophyll to the group of carotenoids in which oxygen has been added to the carbon and hydrogen atoms to give hydroxyl groups. The term lutein (3:3'-dihydroxy-a-carotene) is reserved for the carotenoid which has sometimes been called xanthophyll.

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Buphaga Africanoides A. Smith, 1831 a nomen oblitum?

My recent recommendation in *Bull. Brit. Orn. Cl.*, vol. 88, 8, 1968, pp. 135, 172 that *Buphagus erythrorhynchus africanoides* A. Smith, 1831, should now replace *Buphagus erythrorhynchus caffer* Grote, 1927, has been questioned in light of the requirements of Article 23 (*b*) of the *International Code of Zoological Nomenclature*, 1961. In case other workers should also believe I have acted against one of the requirements of the *International Code*, it should be pointed out that the adoption of the name *africanoides* Smith, 1831, in place of *caffer* Grote, 1927, is not contrary to the terms of the Article concerned, as the name was republished in 1880 in the Willughby Society's reprint of Smith's collected South African works on birds, some 49 years after its original publication. Subsequent to the republication of the name in 1880, it again appears in Sherborn, *Index Animalium*, vol. AB, 1922, p. 134.

Strangely enough, *B. africanoides* is not alluded to in Sharpe, *Cat. Birds Brit. Mus.*, vol. xiii, 1890, and Reichenow, *Vög. Afrikas*, vol. ii, 1903, or in any other standard work on the birds of the Ethiopian Region, and appears to have been overlooked by ornithological scholars. It cannot, however, be dismissed as a nomen oblitum under the requirements of Article 23 (*b*) because of its republication in 1880 (49 years after original publication) and listing in Sherborn in 1922 (42 years after republication). P. A. Clancey

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Clancey 1968, *Bull. Brit. Orn. Cl.* 88, pp. 135, 172 points out that Sir Andrew Smith in 1831, *South African Quarterly Journal* No. V, p. 12, gives the name *Buphaga Africanoides* to a Red-billed Oxpecker. He argues that, having priority, this name should now be used in place of *Buphagus erythrorhynchus caffer* Grote 1927, for the southern race.

He has since told us (*in litt.*) that to his knowledge Smith's name has not appeared in literature since its introduction except in the Willughby Society Reprints of 1880 and in Sherborn 1922, *Index Animalium*, vol. AB, p. 134. In the latter work it appears only as a name in an index.

It is thus clear that *B. africanoides* Smith 1831 is "a name that has remained unused as a senior synonym in the primary zoological literature for more than fifty years". Such a name shall, by Article 23 (*b*) of the *International Code of Zoological Nomenclature* 1961, "be considered a forgotten name (nomen oblitum)" and must be referred to the International Commission "to be placed on either the appropriate Official Index of Rejected Names, or, if such action better serves the stability and universality of nomenclature, on the appropriate Official List".

This has been pointed out to Mr. Clancey who has accordingly referred the name to the Commission. Meanwhile the same Article of the *International Code* rules that "A nomen oblitum is not to be used unless the Commission so directs".

C. W. Benson
B. P. Hall

The ruling of the International Commission on Zoological Nomenclature will be published in the *Bulletin*.—ED.